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*Counsel for Plaintiffs and the Proposed
 Classes*

**UNITED STATES DISTRICT COURT
 NORTHERN DISTRICT OF CALIFORNIA
 SAN JOSE DIVISION**

JOHN DOE I and JOHN DOE II, on behalf
 of themselves and all others similarly
 situated,

Plaintiffs,

v.

GOOGLE LLC,

Defendant.

Case No. 5:23-cv-02431-BLF

**DECLARATION OF DR. TIMOTHY
 LIBERT IN SUPPORT OF PLAINTIFFS’
 MOTION FOR PRELIMINARY
 INJUNCTION AND PROVISIONAL CLASS
 CERTIFICATION**

Date: November 2, 2023
 Time: 9:00 A.M.
 Judge: Hon. Beth Labson Freeman

DECLARATION OF DR. TIMOTHY LIBERT

I, DR. TIMOTHY LIBERT, hereby declare under penalty of perjury:

1. I am the owner of webXray LLC, a consulting firm that works on issues involving the presence, and functioning of, code on websites which generate network requests that may be used to track and profile users.

2. I submit this declaration in support of Plaintiffs' Motion for Preliminary Injunction.

3. I have personal knowledge of the facts set forth herein and, if called as a witness, could and would testify competently to them.

4. I reserve the right to modify, supplement or otherwise amend my statements, analyses, and conclusions as new and additional information becomes available to me.

I. QUALIFICATIONS

5. I am highly experienced in the area of web technologies and privacy. I have been designing, coding, and analyzing websites for the past 24 years, and I am fluent in several programming languages and data analysis techniques. I received my Ph.D. from the University of Pennsylvania in 2015 where I pursued interdisciplinary coursework and research in communications policy, computer science, law, business, and medicine. I completed my post-doctoral training at the University of Oxford where I studied the impact of Europe's General Data Protection Regulation on news websites. I was a Special Faculty Instructor at Carnegie Mellon University for three years where I taught several courses in the world's only Privacy Engineering program and conducted research into web tracking at the CyLab Security and Privacy Institute.

6. Currently, I am the owner of webXray LLC, which is a data protection consultancy focused on measuring and documenting privacy violations on the web.

7. Attached as **Exhibit A** is a current copy of my curriculum vitae.

II. ASSIGNMENT AND SUMMARY CONCLUSIONS

8. I have been asked to determine whether it is possible to identify health care websites (defined below) where the inclusion of Google source code is causing the interception and transmission of patient information to Google, and, if so, to perform an analysis of these websites and the corresponding prevalence of Google tracking and interception of patient information. None

1 of my analysis involved the collection, use, or examination of any information which is not publicly
2 available.

3 9. As set forth below, I was able to compile a subset of health care websites and then
4 conduct testing to identify the websites where the inclusion of Google source code caused the
5 interception and transmission of patient information to Google. My results showed that Google
6 source code was present on 87% of the health care websites, with Google Analytics being present
7 67% of the time, Google Ads 58% of the time, Google Display Ads 59% of the time.

8 10. This comprehensive and indiscriminate data collection means those seeking
9 information related to the mental health of their children, medical help after a sexual assault, and
10 loans to pay medical bills have these deeply sensitive topics – and many more – transmitted to
11 Google. For example, and as described in detail below, my results showed Google presence on the
12 following web pages:

- 13 • <https://www.invega.com/adolescent-childhood-schizophrenia.html>
- 14 • <https://www.creekhealth.org/services/sexual-assault-nurse-exams/>
- 15 • [https://www.effinghamhealth.org/billing-insurance/medical-credit-card-loan-](https://www.effinghamhealth.org/billing-insurance/medical-credit-card-loan-options/)
16 [options/](https://www.effinghamhealth.org/billing-insurance/medical-credit-card-loan-options/)

17 The process of conducting this analysis was straightforward and uses techniques which are well
18 known to qualified professionals.

19 11. Having determined that it is relatively easy to identify a web property with Google
20 source code, I next engaged in a more in-depth analysis, looking at every page within a web
21 property (i.e. the “site map”) to determine the prevalence of Google source code inclusion within a
22 particular web property. For this analysis, I examined the following three sample hospitals – Kaiser
23 Permanente, Gunderson Health Care (“Gundersen”), and MD Mercy Health Services (“MD
24 Mercy”). It is my understanding that each of these hospitals corresponds with some of the named
25 plaintiffs in this case.

26 12. As set forth below, my analysis reveals that the inclusion of Google source code is
27 consistently present on pages that contain private and sensitive information. Notably, the URLs
28 for these pages – which are conveyed to Google – provide clear descriptions of what a patient is

1 looking for, as seen in the following examples:

- 2 • [https://about.kaiserpermanente.org/health-and-wellness/our-care/seeking-early-](https://about.kaiserpermanente.org/health-and-wellness/our-care/seeking-early-detection-for-pancreatic-cancer)
- 3 [detection-for-pancreatic-cancer](https://about.kaiserpermanente.org/health-and-wellness/our-care/seeking-early-detection-for-pancreatic-cancer)
- 4 • <https://www.gundersenhealth.org/services/mychart-e-visit>
- 5 • <https://mdmercy.com/find-a-doctor/kelly-alexander-md/request-appointment>

6 The above URL is merely an example of a vast universe of such URLs which contain clear
7 descriptions of the content of the patient's inquiry.

8 13. Further, because the inclusion of Google source code is pervasive within the web
9 property (i.e. presence on almost every single web page), the sequence of network transmissions
10 being sent to Google would effectively disclose nearly every step, navigation and communication
11 that is taken by a particular patient.

12 **III. IT IS POSSIBLE TO IDENTIFY THE HEALTH CARE WEBSITES WHICH ARE** 13 **SUBJECTED TO GOOGLE SOURCE CODE**

14 **A. METHODOLOGY**

15 14. In this section I discuss how automated web privacy analysis can be used to
16 investigate and identify health care web-properties that contain Google source code. Specifically,
17 as to the inclusion of Google source code, I analyzed for the following: Google Analytics, Google
18 Ads, Google Display Ads, YouTube, Google Tag Manager, and Google APIs.

19 15. The first step in my analysis was to select a set of properties to investigate. To that
20 end, I attempted to compile as many web-properties as possible from the following categories:
21 hospitals, pharmacies, prescription drugs, and health insurers. To be clear, the web-properties that
22 I was able to compile is not intended to represent the full list of "Health Care Providers," as that
23 phrase is defined in Plaintiffs' complaint. *See* Dkt. 1, fn. 1. Rather, this was an exercise to see how
24 feasible it is to compile the list and then analyze the presence of Google source code.

25 16. With respect to hospitals, I was given a list of 3,394 hospital web-properties from
26 Plaintiffs' counsel.

27 17. With respect to pharmacies, I researched and compiled a list of 101 pharmacies.
28

1 18. With respect to prescription drug sites, I looked to the U.S. Food and Drug
2 Administration list of approved medications as a starting point and then found the homepages for
3 each drug, ending up with 1,765 prescription drug web properties.

4 19. With respect to health insurers, I used a variety of web search methods to find web
5 properties which offered coverage to individuals for medical, dental, or vision, thereby producing
6 786 sites.

7 20. The second step in my analysis was to detect tracking code, cookies, and network
8 traffic which expose user data. I have been analyzing privacy issues on web-properties for over a
9 decade, using a tried-and-true methodology that I have perfected over many years. At a high level,
10 I use software which instructs the web browser to open a specific URL or set of URLs (e.g. web
11 pages within a specific web property). When a page is open, basic user actions such as scrolling
12 and clicking to additional pages on the same site are performed. At the conclusion of the page
13 interaction, the software processes, records, and stores all source code, cookies, network traffic,
14 and other pertinent information in a searchable database. I am then able to easily generate summary
15 reports of the data as well as identify specific lines of code, cookies, and the like.¹ For example, I
16 can easily review the summary reports to identify network traffic which downloads Google source
17 code to a user's browser, thereby exposing their browsing behaviors to Google.

18 **B. ANALYSIS**

19 21. Proceeding under the above methodology, I ran the list of web properties through
20 the tool, instructing the program to analyze the home page and a random set of web pages from
21 within each health care web property. I then reviewed the summary report for the presence of
22 network transmissions to Google that exposed user information, identifiers, and browsing activity
23 to Google.

24 ¹ My webXray technology has been in development since 2015 and the corresponding methodology
25 has been peer reviewed in the most competitive academic venues in the world and I have numerous
26 publications which provide evidence the approach is sound. Some notable examples include Libert,
27 Timothy. "Privacy implications of health information seeking on the web." *Communications of the*
28 *ACM* 58.3 (2015): 68-77.; Libert, Timothy "An automated approach to auditing disclosure of third-
party data collection in website privacy policies." *Proceedings of the 2018 World Wide Web*
Conference. 2018.; and McCoy, Matthew S., et al. "Prevalence of third-party tracking on COVID-
19-related web pages." *Jama* 324.14 (2020): 1462-1464.

1 22. Specifically, I investigated network transmissions to the following domains that
2 belong to the following Google products:

3 a. Google Display Ads, also known as DoubleClick, which is associated with the
4 following domains:

- 5 i. 2mdn.net
- 6 ii. doubleclick.com
- 7 iii. doubleclick.net
- 8 iv. doubleclickbygoogle.com

9 b. Google Ads, which is associated with the following domains:

- 10 i. google.com
- 11 ii. googleadservices.com
- 12 iii. googlesyndication.com

13 c. Google Analytics, which is associated with the following domains:

- 14 i. google-analytics.com
- 15 ii. analytics.google.com

16 d. Google APIs, which is associated with googleapis.com domain.

17 e. Google Tag Manager, which is associated with the following domains:

- 18 i. googletagmanager.com
- 19 ii. googletagservices.com

20 f. YouTube, which is associated with the following domains:

- 21 i. youtube.com
- 22 ii. youtubetv.com
- 23 iii.youtu.be
- 24 iv. youtube-nocookie.com
- 25 v. yting.com

26 23. Based on my review of the summary reports generated, and leveraging the above
27 list of Google domains, I am able to conclude as follows:

28 a. 87% of all the web properties analyzed made requests to download code that

1 generated network traffic which exposed user information, identifiers, and
2 browsing activity to Google.

3 b. 67% of all web properties analyzed made requests to download code that
4 generated network traffic which exposed user information, identifiers, and
5 browsing activity to Google Analytics.

6 c. 58% of all web properties analyzed made requests to download code that
7 generated network traffic which exposed user information, identifiers, and
8 browsing activity to Google Ads.

9 d. 59% of all web properties analyzed made requests to download code that
10 generated network traffic which exposed user information, identifiers, and
11 browsing activity to Google Display Ads.

12 e. 69% of all web properties analyzed made requests to download code that
13 generated network traffic which exposed user information, identifiers, and
14 browsing activity to Google Tag Manager.

15 f. 19% of all web properties analyzed made requests to download code that
16 generated network traffic which exposed user information, identifiers, and
17 browsing activity to YouTube.

18 g. 66% of all web properties analyzed made requests to download code that
19 generated network traffic which exposed user information, identifiers, and
20 browsing activity to Google APIs.

21 **IV. ANALYSIS OF GOOGLE SOURCE CODE ON SPECIFIC WEB PAGES WITHIN**
22 **SAMPLE WEB PROPERTIES**

23 24. Whereas my analysis above relied on loading the home page and a random selection
24 of internal pages, to conduct an even more in-depth review of the inclusion of Google source code
25 on a web property, I analyzed a large volume of pages on three sample hospital web properties:
26 Kaiser Permanente, Gundersen, and MD Mercy.

27 25. In the cases of Gundersen and MD Mercy I used their publicly available
28 "sitemap.xml" file which provides a list of URLs that are available on these respective web

properties. A sitemap “is a file where you provide information about the pages, videos, and other files on your site, and the relationships between them.”² A publicly available site map does not exist for Kaiser Permanente, thus I iteratively extracted links from a given page and loaded those pages to find more links.

26. While a random sampling of pages provides insights into the presence or absence of Google on a specific site, a deeper analysis of internal pages may reveal the specific URLs, and patient interests, sent to Google.

27. For example, on the Kaiser web property, network transmissions are made to Google on the following web page URLs that contain clear descriptions of the content of the patient’s communications:

- <https://about.kaiserpermanente.org/health-and-wellness/our-care/remote-patient-monitoring-improves-care-for-chronic-disease>
- <https://about.kaiserpermanente.org/health-and-wellness/our-care/seeking-early-detection-for-pancreatic-cancer>
- <https://about.kaiserpermanente.org/health-and-wellness/our-care/cardiac-care>
- <https://well.kaiserpermanente.org/physicians/raman-luhadiya/>

28. On the Gundersen web property, network transmissions are made to Google on the following web page URLs that contain clear descriptions of the content of the patient’s communications:

- <https://www.gundersenhealth.org/our-system/request-an-appointment>
- <https://www.gundersenhealth.org/pay-my-bill/online-bill-pay-help>
- <https://www.gundersenhealth.org/services/mychart-e-visit>
- <https://www.gundersenhealth.org/services/non-surgical-weight-loss/non-surgical-weight-loss-seminar/weight-management-obesity>

29. On the MD Mercy web property, network transmissions are made to Google on the following web page URLs that contain clear descriptions of the content of the patient’s communications:

² “Google Search Central: Learn about sitemaps”

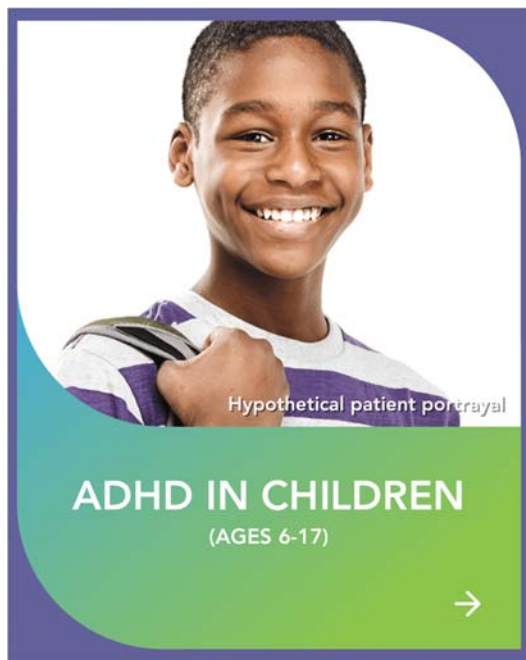
https://developers.google.com/search/docs/crawling-indexing/sitemaps/overview?hl=en&visit_id=638217792861284157-117525059&rd=1

- 1 • <https://mdmercy.com/find-a-doctor/kelly-alexander-md/request-appointment>
- 2 • <https://mdmercy.com/mercy-services/cancer-institute/medical-oncology-and-hematology/appointments-and-contact/request-appointment>
- 3 • <https://mdmercy.com/mercy-services/cancer-institute/melanoma-and-skin-cancer-center>
- 4 • <https://mdmercy.com/mercy-services/cancer-institute/surgical-oncology/diagnostic-and-specialty-services?listPage=1>

5
6 30. Analysis of the site maps, and Google’s prevalence throughout a particular web
7 property, also demonstrates that Google’s access to individuals’ engagement with their Health Care
8 Provider web properties – their inquiries, communications, actions, and navigation history – is
9 incredibly pervasive. The analysis of Kaiser Permanente, Gundersen and MD Mercy site maps
10 reveals that Google is present on nearly all web pages. The net effect is that Google does not get
11 just a snapshot of an individuals’ interaction and communications, but rather an almost unrestricted
12 view and access to the full navigation and browsing history undertaken by individuals with their
13 health care providers.

14 31. Further, my analysis provides evidence of transmission to Google of “click-through”
15 behavior, i.e., a transmission that communicates that an individual is in fact transitioning from one
16 page to another. My software simulates user activity by clicking links and scrolling on a page, in
17 tandem, it monitors how such activities may be monitored by outside parties in real time.

18 32. For example, when a user on the home page of the ADHD medication Vyvanse
19 clicks on the link for “ADHD IN CHILDREN” (shown below), the text “Click” and “ADHD IN
20 CHILDREN” is sent to Google Analytics.
21
22
23
24
25
26
27
28



33. In fact, as demonstrated, this “click through” action is captured simultaneously by Google Analytics and Google Tag Manager. The specific transmissions to each of these Google products are as follows:

Google Analytics:

[https://www.google-analytics.com/collect?v=1&_v=j100&a=1329054035&t=event&ni=0&_s=1&cd=https%3A%2F%2Fwww.vyvansepro.com%2F&dl=https%3A%2F%2Fwww.vyvansepro.com%2F&dp=%2F&ul=en-us&de=UTF-8&dt=Vyvanse%C2%AE%20Uses%2C%20Dosage%2C%20Clinical%20Data%2C%20%26%20Resources%3A%20For%20HCPs&sd=24-bit&sr=1280x720&vp=&jc=0&ec=Clicks&ea=Click&el=Clicks%3AClick%3AADHD%20IN%20CHILDREN%20\(AGES%206-17\)%20Hypothetical%20patient%20portrayal%3Ahttps%3A%2F%2Fwww.vyvansepro.com%2Fadhd%2Fadhd-in-children&_u=aADAAEABAAAAACAAI~&jid=&gjid=&cid=1342691313.1686082273&tid=UA-2357337-11&_gid=2091258812.1686082273>m=45He3650n81NF4GCVP&z=1940072035](https://www.google-analytics.com/collect?v=1&_v=j100&a=1329054035&t=event&ni=0&_s=1&cd=https%3A%2F%2Fwww.vyvansepro.com%2F&dl=https%3A%2F%2Fwww.vyvansepro.com%2F&dp=%2F&ul=en-us&de=UTF-8&dt=Vyvanse%C2%AE%20Uses%2C%20Dosage%2C%20Clinical%20Data%2C%20%26%20Resources%3A%20For%20HCPs&sd=24-bit&sr=1280x720&vp=&jc=0&ec=Clicks&ea=Click&el=Clicks%3AClick%3AADHD%20IN%20CHILDREN%20(AGES%206-17)%20Hypothetical%20patient%20portrayal%3Ahttps%3A%2F%2Fwww.vyvansepro.com%2Fadhd%2Fadhd-in-children&_u=aADAAEABAAAAACAAI~&jid=&gjid=&cid=1342691313.1686082273&tid=UA-2357337-11&_gid=2091258812.1686082273>m=45He3650n81NF4GCVP&z=1940072035)

Google Tag Manager

https://www.googletagmanager.com/a?id=GTM-NF4GCVP&v=3&t=t&pid=689399374&cv=12&rv=3650&tc=143&es=1&e=gtm.click&e_id=45&u=AgAAAAAAAAAAAAACCA&h=Ag&pcr=41.41.41.41&z=0

34. These transmissions once again demonstrate the extent of Google’s access to patients’ health information and communications with their health care providers.

1 35. I declare under penalty of perjury under the laws of the United States of America
2 that the foregoing is true and correct.

3 Executed this 12th day of June 2023 at Sunnyvale, California.

4 

5
6 /s/_____
7 Dr. Timothy Libert

EXHIBIT “A”

Timothy Patrick Libert

webXray LLC, webXray.ai LLC
Silicon Valley California
United States

Email: tim@webxray.ai
Homepage: <https://timlibert.me>

Academic, Research, & Professional Appointments

Founder and CEO, webXray LLC, webXray.ai, 2023-Present.
Staff Privacy Engineer, Cookie and Web Storage Privacy Lead, Google, 2021-2023.
Special Faculty Instructor, Carnegie Mellon University, 2018 - 2021.
Post-Doctoral Research Fellow, University of Oxford, 2017-2018.
Visiting Fellow, Alexander von Humboldt Institute for Internet and Society, Berlin 2016.
Senior Fellow, Information Controls Fellowship Program, Open Technology Fund, 2015.
Visiting Fellow, Center for Media, Data, and Society, Central European University, Budapest 2015.
Research Consultant, Ranking Digital Rights Project, New America Foundation, 2012-2015.
Doctoral Research Fellow, University of Pennsylvania, 2012-2017.
Web Developer and Systems Administrator, New York University, 2005-2012.
Systems Administrator, Computer Forensics, Stroz Friedberg, LLC, 2004-2005.

Education

Ph.D. Communication, University of Pennsylvania, 2017.
Comprehensive exams passed with distinction.
Interdisciplinary coursework and advisement in Computer Science, Communications Regulation, Law, Business, and Social Theory.
Dissertation: *Track the Planet: A Web-Scale Analysis of How Online Behavioral Advertising Violates Social Norms*
B.A. Major Sociology, Minor Computer Science, New York University, 2004.

Grants

Digital Health Privacy Initiative, Public Interest Technology University Network (with Penn Medicine). 2021.
Large-Scale Analysis of Medically-Targeted Online Advertising and User Health Privacy Concerns, CyLab. 2020-2021.
Agile Dimorphic Execution for Dispersed Computing, DARPA. 2019-Present.
Third-Party Network Traffic Attribution for IoT, TV, Web, and Mobile, CyLab. 2019-Present.
Flash Grant, Shuttleworth Foundation. 2015.

Fellowships, & Awards

Best Paper Award, ACM Conference on Web Science. 2018.
Best Paper Nominee, The Web Conference (WWW). 2018.

Dissertation Fellowship, Annenberg School for Communication, University of Pennsylvania. 2016 - 2017.
 Research Fellowship, Annenberg School for Communication, University of Pennsylvania. 2012 - 2016.
 Top Student Paper, International Communication Association, Communication and Technology Division. 2015.
 Consortium on Media Policy Studies Research Fellowship. Summer 2013.

Courses Taught

Engineering Privacy in Software, Carnegie Mellon University, 2019-Present.
 Privacy Policy, Law, and Technology, Carnegie Mellon University, 2018-Present.
 Privacy Seminar, Carnegie Mellon University, 2018-Present.
 Information Technology Policy: Evidence, Communication, and Advocacy, Carnegie Mellon University, 2019.

Courses as Teaching Assistant

Free Expression, University of Pennsylvania, 2015.
 China Today, University of Pennsylvania, 2014.

Publications

Peer-Reviewed

McCoy, Matthew S; Libert, Timothy; Buckler, David; Grande, David T; Friedman, Ari B (2020). Prevalence of Third-Party Tracking on COVID-19-Related Web Pages *Journal of the American Medical Association (JAMA)*.

Maris, Elena; Libert, Timothy; Henrichsen, Jennifer (2020). Porn, Privacy and the Vulnerable: The Implications of Third-Party Tracking on Porn Websites. *New Media and Society*.

Libert, Timothy; Binns, Reuben (2019). Good News for People Who Love Bad News: Privacy, Trust, and Security Implications of Third-Party Content on U.S. News Websites *ACM Conference on Web Science (WebSci '19)*.

Libert, Timothy (2018). An Automated Approach to Auditing Disclosure of Third-Party Data Collection in Website Privacy Policies. *The Web Conference (WWW2018)*. *Best Paper Nominee*.

Binns, Reuben; Lyngs, Ulrik; Van Kleek, Max; Zhao, Jun; Libert, Timothy; Shadbolt, Nigel (2018). Third Party Tracking in the Mobile Ecosystem. *ACM Conference on Web Science (WebSci '18)*. *Best Paper Award*.

Libert, Timothy (2015). Privacy Implications of Health Information Seeking on the Web. *Communications of the Association for Computing Machinery*.

Libert, Timothy (2015). Exposing the Hidden Web: Third-Party HTTP Requests On One Million Websites. *International Journal of Communication*

Libert, Timothy; Grande, David, MD, MPA; Asch, David A. MD (2015). What Web Browsing Reveals About Your Health. *The BMJ (British Medical Journal)*.

Editorial

McCoy, Matthew S; Libert, Timothy; Friedman, Ari B (2020). Online privacy loss: another Covid-19 aftershock. *STAT*.

Libert, Timothy (2019). This Article is Spying on You. *The New York Times*.

Libert, Timothy; Repnikova, Maria (2015). Google is returning to China? It never really left. *The Guardian*.

Libert, Timothy; Pickard, Victor (2015). Think you're reading the news for free? New research shows you're likely paying with your privacy. *The Conversation (Republished in Newsweek & Fortune)*.

Whitepapers

Libert, Timothy; Graves, Lucas; Nielsen, Rasmus Kleis (2018). Changes in Third-Party Content on European News Websites after GDPR. *Reuters Institute for the Study of Journalism, University of Oxford*.

Libert, Timothy; Nielsen, Rasmus Kleis (2018). Third-Party Web Content on EU News Sites: Potential Challenges and Paths to Privacy Improvement. *Reuters Institute for the Study of Journalism, University of Oxford*.

Open Technology Institute. Health Privacy Online: Patients at Risk. *Comment for Submission to Federal Trade Commission*.

Book Chapters

Media Activism in the Digital Age. Routledge, 2017. *Introduction to Section II: Policy Interventions*

Multimedia

Privacy Implications of Health Information Seeking on the Web (Video)

Youtube: <https://www.youtube.com/watch?v=OqW8erWi1Wo>

Software

webXray, GNU Public License, 2015.

Project Page: <http://webxray.org>

GitHub: <https://github.com/timlib/webxray>

Expert Witness

WINSTON SMITH, et al. v. FACEBOOK, INC., et al. *United States District Court, Northern District of California, 2016*.

Invited Lectures and Panel Appearances

Tufts University, The Future of Democracy in the Age of Disinformation: Innovating Policy Solutions for a Networked World, 2019.

Panelist: *Can the Platforms Save Us?*

Netzpolitische Abend, C-Base, Berlin, 2016.

Web Scale Analysis of Third-Party Tracking with webXray: Techniques and Findings

School of Public Policy, Central European University, 2015.

Web Tracking with Chinese Characteristics

Center for Media, Data, and Society, Central European University, 2015.

Web Tracking with Chinese Characteristics

University of Oxford, 2015.
Web Tracking with Chinese Characteristics

University of Pennsylvania, 2015.
Ranking Digital Rights

University of Pennsylvania, 2014, 2015.
Internet Censorship in China

University of Pennsylvania, 2013, 2014.
The National Security Agency in Context.

University of Pennsylvania, 2012, 2013.
Privacy Risks for Online Activists

Conference and Seminar Presentations

Social Informatics, 2017
On the Impossibility of Accepting the Unknown: A Web-Scale Analysis of the Failure of Notice and Choice

Schloss Dagstuhl: Online Privacy and Web Transparency, 2017
Surveillance as a Regulatory Model

Hackers on Planet Earth (HOPE), 2016
Deconstructing Ad Networks for Fun and Profit

International Communications Association, 2016
The Logic of Connective Surveillance

Princeton Center for Information Technology Policy / University of Vienna Media Innovation Lab Doctoral Workshop, 2016
Web-Scale Regulatory Failure: An Empirical Examination of Self-Regulation and Violations of Contextual Integrity on the Web

Computers Privacy and Data Protection, 2016
The Logic of Connective Surveillance

The Empiricist's Challenge: Asking Meaningful Questions in the Age of Big Data, Mannheimer Zentrum für Europäische Sozialforschung (MZES), 2015
Web Tracking with Chinese Characteristics

International Communications Association, 2015
Web Tracking with Chinese Characteristics

Union for Democratic Communication, 2015
The Logic of Connective Surveillance

RightsCon Southeast Asia, 2015
Smartphones and Human Rights: Developing Evaluation Criteria for Complex Systems

Global Implications of Mobile Ubiquity: Research, Culture, and Policy, 2014
Ranking Digital Rights: A Framework for Evaluating Human Rights in a Mobile Context

Chinese Internet Research Conference, 2014
Web Tracking with Chinese Characteristics: A Critical Perspective on the Emerging Online Surveillance Market in China

International Communications Association, Data and Discrimination: Converting Critical Concerns into Productive Inquiry, 2014
Privacy Implications of Health Information Seeking on the Web

RightsCon Silicon Valley, 2014
Holding Companies Accountable On Free Expression And Privacy, Group Participant

New York University Neil Postman Graduate Conference, 2014

Exposing the Invisible Web: An Analysis of Corporate-Sponsored Data Collection on One Million Websites

International Open Access Week, University of Pennsylvania Libraries, 2013

Civic Hacking: Creating an Open Government through Technology, Invited Respondent

Selected Press

Television and Radio

2017

Deutschlandfunk (Germany)

Und sie wissen, was du tust

2015

Good Morning America

Online Medical Searches May Be Sold

All Things Considered, National Public Radio

Online Health Searches Aren't Always Confidential, Interview with Robert Siegel

ABC 6 Television News, Philadelphia

Your Health Info May Be Bought and Sold Online

WHYY Public Radio, Philadelphia

Who gets access to the data my Apple Watch collects?

WHYY Public Radio, Philadelphia

Most health information web pages are tracked, Penn study finds

Print and Web

2020

BBC (United Kingdom)

UK councils' benefits pages push credit card adverts

Vox (United States)

Our phones can now detect health problems from Parkinson's to depression. Is that a good thing?

Cure (United States)

Full Disclosure, Your Health Information Isn't Private

Harrogate Advertiser (United Kingdom)

Harrogate Council found to use third-party advertising cookies on website without asking for consent

St. Helen's The Reporter (United Kingdom)

St Helens Council to review cookie use on its website following BBC investigation

The Packet (United Kingdom)

Cornwall Council had advertising cookies on website

Cornwall Live (United Kingdom)

Cornwall Council accused of sharing people's data without their consent

Daventry Express (United Kingdom)

Revealed: Northampton, South Northants councils allow advertisers to gather residents' data without their consent

Devon Live (United Kingdom)

Investigation finds Torbay council targeting online ads at people seeking benefits advice

Northampton Chronicle (United Kingdom)

Revealed: Northampton, South Northants councils allow advertisers to gather residents' data without their consent

Portland Tribune (United States)

Critics: Oregon COVID-19 symptom checker raises privacy concerns

2019

Financial Times (United Kingdom)

A health warning for your data

Financial Times (United Kingdom)

How top health websites are sharing sensitive data with advertisers

New Scientist (United States)

Thousands of pornography sites leak data to Google and Facebook

Daily Mail (United Kingdom)

Health websites in the UK 'share search terms with advertisers'

National Magazine (Canada)

Reforming privacy in the age of AI

New York Times (United States)

Facebook and Google Trackers Are Showing Up on Porn Sites

New Kerala (India)

Google, Facebook secretly track as you watch porn

Forbes (United States)

Google And Facebook Secretly Track Your Activity On Porn Sites

CNET (United States)

Google and Facebook might be tracking your porn history, researchers warn

The Verge (United States)

Google and Facebook's tracking software is widely used on porn sites, shows new study

New York Post (United States)

Facebook and Google can see what porn you're watching

Business Insider (United States)

Facebook and Google track what porn you're watching, even when you're in incognito

The Daily Dot (United States)

Facebook and Google could be tracking you on porn sites

Orlando Sentinel (United States)

Vast majority of porn sites track user data, often without telling you

Axios (United States)

Study: Porn sites secretly track users

ZD Net (United States)

93% of porn sites leak data to a third-party

The Daily Mail (United Kingdom)

Google and Facebook are tracking users as they watch PORN

Evening Standard (United Kingdom)

Google porn tracking: Search engine promises to restore private browsing mode following loophole discovery

Ars Technica (United States)

How private is your browser's Private mode? Research into porn suggests "not very"

Gizmodo (United States)

So, About Your Internet Porn Habits

MediaPost (United States)

Ad Trackers On Porn Sites: Yet Another Diamond In Internet's Crown

ArsTechnica (United States)

How private is your browser's Private mode? Research into porn suggests 'not very'

Breitbart (United States)

Report: Google and Facebook Are Tracking Porn Viewing Habits

Der Standard (Austria)

Google und Facebook tracken Pornoseiten auch im Inkognito-Modus

Heise Online (Germany)

Google und Facebook tracken auch auf Sex-Websites

Kenyan Times (Kenya)

Google and Facebook track you even if you surf porn sites in private mode

Mashable (United States)

No, Incognito mode won't keep your porn habits private. This will.

Metro (United Kingdom)

Porn sites are collecting your most intimate secrets and incognito mode won't protect you

National Herald (India)

Google, Facebook track porn-viewing habits

NDTV (India)

Google, Facebook Are Tracking Your Porn-Viewing Habits, and Incognito Mode Won't Save You

News of Emirates (United Arab Emirates)

Google And Facebook Might Be Tracking Your Porn History, Researchers Warn

Olhar Digital (Brazil)

Google e Facebook rastreiam acessos em sites pornô, diz estudo

Spider's Web (Poland)

Kogo ciekawi, jakie porno oglądasz i dlaczego jest to szef Facebooka?

Sputnik (Russia)

Study Claims Google, Facebook Keeping Watchful Eye on Porn Site Surfers

Stern (Germany)

Facebook und Google verfolgen uns Überall: Man kann nicht einmal unbeobachtet Pornos schauen

Süddeutsche Zeitung (Germany)

Wie Sie beim Pornoschauen beobachtet werden

The Next Web (US)

Google and Facebook are tracking your porn preferences - even in incognito mode

The Register (UK)

Incognito mode won't stop smut sites sharing your pervy preferences with Facebook, Google and, er, Oracle

The Star (Malaysia)

Google and Facebook track you even if you surf porn sites in private mode

ZDNet (US)

93 of porn sites leak data to a third-party

2018

CBC News (Canada)

Think twice before consulting Dr. Google, researchers say

2017*Canadian Bar Association, National Magazine*

The \$4 trillion question, How can we protect online privacy without stifling innovation?

2016*Urgente 24 (Argentina)*

Una vergüenza que intereses y burocracia frenen la Historia Clínica Electrónica en hospitales argentinos

Editor & Publisher

Shoptalk: Why Journalists Need to Stand Up for Reader Privacy

Netzpolitik (Germany)

Tracking durch Drittanbieter auf einer Million Webseiten

Vice

What Happens to the Data Collected On Us While We Sleep

2015*20 Minutes (France)*

Les recherches Web sur des problèmes médicaux ne sont pas si privées que ça

20 Minutes (France)

Web: Neuf sites sur dix partageraient vos données personnelles

ADSL Zone (Spain)

9 de cada 10 webs envían tus datos a terceros

Advertising Age

How Google's Alphabet Reorg Could Affect Its Health Data

Al-Jazeera America

The CDC knows what ails you — and now, so do many others

Agence Science-Press (Canada)

Internet : vous êtes encore plus suivi que vous ne le pensez

AuthomatiseringGids (Netherlands)

Op internet kijken minstens 5 partijen mee wat je uitspookt

Bangor Daily News

There's no doctor-patient confidentiality on the Internet

Boy Genius Report

It's almost impossible to stop Google and Facebook from knowing about your health-related searches

Business Standard (India)

Searching medical info online poses privacy risk

Cambodian Times

Online health details prone to risk of abuse

CBS Washington, DC

Study: 'Invisible Web' Threatens Health Privacy

CIO

Patients must know the perils of online medical research

City A.M. (UK)

Think you're not being tracked online? Our browsing habits are captured and leaked by nine out of 10 major websites

Consumer Affairs

Looking up medical info on the web poses a privacy risk

elPeriódico (Spain)

Los datos de actividad carecen de una protección específica

Fast Company

The Latest Privacy Risk? Looking Up Medical and Drug Information Online

Gear & Style Cheat Sheet

5 Things You Should Never Search on Google

HIV Plus Magazine

Your Anonymous Online Health Searches Are Apparently Not So Anonymous

iHealthBeat

Many Health-Related Web Pages Share User Data With Third Parties

Ilta-Sanomat (Finland)

Pornohistoriasi saattaa paljastua - selaimen yksityistila ei pelasta

IT Forum 365 (Brazil)

Nove de dez sites liberam dados de usuários para terceiros

Komando

Big business is tracking your online symptom searches

La Nacion (Argentina)

La historia clínica, última frontera de la privacidad

La Nacion (Argentina)

88% de los sitios web más populares filtran datos a terceros

LeVif (Belgium)

Au moins 5 ‘voyeurs’ regardent ce que vous faites sur internet

Lifehacker

Why You Probably Shouldn’t Look Up Health Symptoms Online

Medical Marketing & Media

Vice: Health search queries are being tracked

MNO (Hungary)

Adatterrorizmus a digitális küzdőtéren

Naked Security

How nine out of ten healthcare pages leak private data

NBC News

Cyber Monday: What Happens to Your Data When You Shop Online?

NDTV (India)

90 Percent of Websites Leak User Data to Third Parties: Study

PC Magazine (Greek Edition)

9 out of 10 website handing your data (Headline Translated)

R & D Magazine

Online Tracking: A Plight of the Modern Age?

Repubblica (Italy)

Scopre di avere un cancro, su Facebook trova la pubblicità delle pompe funebri: “Scandaloso”

Rizopoulos Post (Greece)

Why Facebook is threatened with a fine of EUR 250,000 per day (Headline Translated)

San Jose Mercury News

Health searches: Be careful who you tell about those cold sores

SC Magazine

Report: Majority of health-related websites leak data to third parties

Science 2.0

You're Being Tracked Online More Than You Realize.

Shape Magazine

How Safe Are Your Electronic Medical Records?

Šibenski portal (Croatia)

POGLEDAJTE ZAŠTO: Ovih pet stvari nikako nemojte pretraživati na internetu

Sunday Observer (Sri Lanka)

Health information at serious risk of abuse

Sympatico (Canada)

Internet : vous êtes encore plus suivi que vous ne le pensez

Techlicious

Third-Party Advertisers Are Spying on Your Medical Searches

Techsocal (Greece)

Research shows that 9 out of 10 sites make data leakage to third parties (Headline Translated)

Tech-WD (Saudi Arabia)

Study: 90 % of websites leak your data to third parties without your knowledge - the world of technology (Headline Translated)

Tech Republic

Online tracking by news organizations is excessive, say researchers

The Hill

Overnight Cybersecurity

The Hindu (India)

The death of privacy

The News Lens (Taiwan)

90% of sites provided tracker quietly put your information with third parties (Headline Translated)

The Next Web

Research reveals 9 of 10 websites leak user data to third parties

The Statesman (India)

Online health details prone to risk of abuse

The Tribune (India)

Searching medical info online poses privacy risk

Time/Money Magazine

Your Embarrassing Online Searches About Health Problems Aren't Private

Times of India

Latest privacy threat: Looking for health information online

Times of India

Facebook, Google may be leaking your data: Study

Version2 (Denmark)

Google overvåger brugere på 80 pct. af alle websites og ignorerer 'Do Not Track'-ønsker

Vice

Looking Up Symptoms Online? These Companies Are Tracking You

Vice

Nine Out of Ten of the Internet's Top Websites Are Leaking Your Data

Vice

Your Porn Is Watching You

Wired

Security News This Week: 9 Out of 10 Websites Leak Your Data to Third Parties

Wired (Italian Edition)

Nove siti su dieci distribuiscono dati a insaputa degli utenti

Xataka

Cuando buscas sobre una enfermedad, es muy probable que alguien esté recolectando esos datos

ZOL.com (China)

Survey: 90 % site visitor information will be disclosed to third parties (Headline Translated)

2014

Fast Company

The London Underground Has Its Own Internet Of Things

2011

Al-Jazeera

Hacktivism for Syria

The Atlantic

Study Finds Broad Support for Online Vigilantism (In Some Cases)

Fast Company

Occupy Sites Help Cops, Corps Track Occupiers

Service

Climate Committee, Institute for Software Research, Carnegie Mellon University, 2018-Present

Student Representative, Information Technology Committee, 2014-2015

Miscellaneous

Programming Languages (Fluent):

CSS, HTML, Javascript, L^AT_EX, PERL, PHP, Python, Regular Expressions, Shell Scripting, SQL, XML.

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